The EPA's

Environmental Technology Verification Program

April 2002

ETV

Site Characterization and Monitoring Technologies

Independent, Credible Assessment of Emerging Monitoring Technologies

The Site Characterization and Monitoring Technologies Program evaluates commercial-ready environmental monitoring technologies. This initiative forms an integral component of the Advanced Monitoring Systems Center, one of the six U.S. EPA Environmental Technology Verification (ETV) Program Centers. In partnership with Oak Ridge National Laboratory and Sandia National Laboratories, the U.S. EPA tests and verifies the performance of new, innovative technologies that can be used to characterize and monitor the environment. The Battelle Memorial Institute also tests and verifies environmental monitoring technologies as a member of ETV's Advanced Monitoring Systems Center. The Site Characterization and Monitoring Technologies Program:

- Assesses the performance of environmental monitoring technologies independently and objectively, in order to benefit potential technology users and permitters.
- Verifies technologies by developing test protocols, evaluating technologies in the field, analyzing data, and reporting results.
- Publishes results in succinct verification statements and fully detailed reports that the EPA and Verification Organization jointly approve and sign.

Benefits for Users, Regulators, the Public, and Vendors

Purchasers and users, regulators, the public, and technology developers and vendors are all benefiting from work performed by the Site Characterization and Monitoring Technologies Program.Why? This initiative provides independent, third-party verification testing, which assures high-quality, consistent, and applicable test procedures that the environmental monitoring community widely accepts. Specific benefits for these participants include:

User Benefits

- Objective, high-quality performance data
- Information required to compare competing technologies
- Substantiation/support for technology selection and purchase
- Reduced financial risk for purchasing agents and corporations

Regulator Benefits

- Increased regulator confidence in proposed innovative technologies
- Objective basis for decision-making
- Fast track to compliance

Public Benefits

- Promotion of cost-effective technology
- Public fund savings

Developer and Vendor Benefits

- Accelerated acceptance of innovative, emerging technologies
- Access to third-party expertise in instrument performance testing
- Verification test results that can be used as a marketing tool
- Increased confidence for investors, stockholders, and lenders

A Broad Range of Application Areas

Technology verification activities by the Site Characterization and Monitoring Technologies Program span a wide variety of environmental applications. Included are:

- Superfund site characterization and monitoring
- Monitored natural attenuation and remediation monitoring
- Long-term, post-remediation environmental monitoring
- Toxic chemical release emergency response
- Brownfield site investigations
- Site characterization associated with real estate transactions
- Decontamination of buildings
- Electric and gas utility network monitoring

Verification Statements Published for a Number of Environmental Technology Categories

Verification testing has been completed for a number of environmental monitoring technology categories, including:

- Cone Penetrometer-Deployed Sensors
- Decision Support Software Systems
- Field Portable GC/MS Systems
- Field Portable Gas Chromatographs
- Field Portable X-ray Fluorescence Analyzers
- Immunoassay Test Kits
- Ion Selective Electrodes
- Sediment Sampling Technologies
- Soil/Soil Gas Sampling Devices
- Photoacoustic Infrared Spectrometers
- Continuous Flow Immunosensors
- Groundwater Sampling Technologies

A Systematic Verification Process

Each technology verification test follows a similar process that includes the steps listed below. Vendor participation occurs throughout the entire verification process and is particularly emphasized during the verification test planning stages.

- User-community needs identification
- Technology solicitation, application and selection
- Verification test planning
- Field verification testing
- Data analysis and reporting
- Information outreach

Outreach Activities

The program draws upon the vendor and user community through periodic stakeholder meetings to identify and prioritize present and future technology needs. All test protocols and test results are readily available via the ETV Web Site (www.epa.gov/etv). Technology verification test results are also disseminated through a wide variety of other venues including trade shows, conferences, Internet seminars, trade journals, and electronic mailing lists.

About the ETV Program

The Environmental Technology Verification Program was created to substantially accelerate the entrance of new environmental technologies into the marketplace by supplying technology buyers, developers, consulting engineers, states, and EPA regions with high-quality, credible data on the performance of new technologies verified through neutral, third-party testing organizations under the direction of the EPA. The ETV Centers shown below cover a variety of environmental application areas:

Air
- Air Pollution Control Technologies
- Greenhouse Gas Technologies

Water
- Drinking Water Systems
- Source Water Protection Technologies
- Wet Weather Flow Technologies

Monitoring
- Advanced Monitoring Systems
- Site Characterization and Monitoring
- Technologies

Pollution Prevention
- Innovative Coatings and Coating Equipment
- Metal Finishing Technologies

For more information about Site Characterization and Monitoring Technologies contact:

Wayne Einfeld
Verification Organization Manager
Sandia National Laboratories
P.O. Box 5800 MS 0755
Albuquerque, NM 87185-0755
Telephone: 505-845-8314
Facsimile: 505-844-0968
E-mail: weinfel@sandia.gov

Roger Jenkins
Verification Organization Manager
Oak Ridge National Laboratory
P.O. Box 2008 MS-6120
Oak Ridge, TN 37831-6120
Telephone: 865-574-4871
Facsimile: 865-576-7956
E-mail: jenkinsra@ornl.gov

Eric Koglin
U.S. Environmental Protection Agency
National Exposure Research Laboratory
P.O. Box 93478
Las Vegas, NV 89193-3478
Telephone: 702-798-2432
Facsimile: 702-798-2107
E-mail: koglin.eric@epa.gov

For more information about the ETV Program, please visit the ETV Web Site at:

www.epa.gov/etv